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#### (54) ROOM TEMPERATURE CURING COMPOSITION AND ITS PRODUCTION

#### (57)Abstract:

PROBLEM TO BE SOLVED: To produce a room temperature curing composition, comprising a specific polymer and a specified low-molecular polymer, having a sufficient low viscosity without deteriorating the flexibility of a cured product even when using an inorganic filler and useful as a sealing material, etc.

SOLUTION: This room temperature curing composition comprises (A) 100 pts.wt. polymer having 1-1.5 hydrolyzable silicon groups on the average in one molecule and 8000-50000 molecular weight and (B) 1-200 pts.wt. low-molecular polymer having 0.5-1.5 hydrolyzable silicon groups on the average in one molecule and 300-8000 molecular weight. Furthermore, both the main chains of the components (A) and (B) are essentially polyethers and the hydrolyzable silicon groups of the components (A) and (B) are represented by the formula R2- SiXaR13-a [R1 is a 1-20C (substituted)monovalent organic group; R2 is a bivalent organic group; X is OH or a hydrolyzable group; (a) is 1-3]. The composition preferably contains further (C) a plasticizer, especially without containing a low-molecular one or preferably does not contain substantially the component (C).

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### CLAIMS

with an or more 300 molecular weight [ leas than 8000 ] more than low molecule polymer (II)1 weightbolymer (I)100 weight section which averages in one molecule and has 1.5 or less one or more picce sydrolytic silicon groups. A room-temperature-curing nature constituent containing less than the Claim 1]As opposed to polymer with an or more 8000 molecular weight [ or less 50000 ] (I) and section 200 weight section that avarages in one molecule and has 1.5 or less 0.5 or more piece hydrolytic silicon groups. Claim(s)]

(Claim 2)A room-temperature-ouring nature constituent of Claim 1 whose both main chain of polymer (I) and main chain of low molecule polymer (II) are polyether intrinsically.

Claim 3)Claim 1 or 2 room-temperature-ouring nature constituents by which both a hydrolytic silicon group of polymer (I) are expressed silicon group of low molecule polymer (I) are expressed with a following formula (A).

-R2-SIX R1 3-4 -- (A)

R<sup>1</sup> is a univalent organic group substitution of the carbon numbers 1-20, or unsubstituted among a formula (A),  $\mathbb{R}^2$  is a divalent organic group. X is a hydroxyl group or a hydrolytic basis, and a is an integer of 1-3.

Claim 5]Olaim 1, a room-temperature-curing nature constituent of 2 or 3 which a room-temperature-curing nature constituent contains a plasticizer further, and do not contain a low Claim 4]Claim 1, a room-temperature-curing nature constituent of 2 or 3 in which a roomemperature-ouring nature constituent does not contain a plasticizer substantially.

silicon groups, A manufacturing method of a room-temperature-curing nature constituent mixing less than the with an or more 300 molecular weight [ less than 8000 ] more than low molecule polymer (II) weight-section 200 weight section that averages in one molecule and has 1.5 or less 0.5 or more [Claim 6]Aa opposed to polymer (0)100 with an or more 8000 molecular weight [or less 50000] weight soction which everages in one molecule and has 1.5 or less one or more piece hydrolytic nolecule plasticizer as the plasticizer. siece hydrolytic silicon groups.

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## DETAILED DESCRIPTION

Detailed Description of the Invention

Field of the invention]This invention relates to the room-temperature-curing nature constituent nardened under hygroscopic-surface-moisture existence.

and hydrolytic eilicon group, end using it for a sealing material, adhesivas, etc. is known well, and is a Description of the Prior Art The method of making harden various kinds of polymers which have an

(0003]The polymer especially whose main chain is polyether among such polymers is liquefied at a comparatively and uses for a sealing material, adhesives, etc., it is provided with the desirable oom temperature, end when a hardened material holds pliability also at low temperature aseful method industrially.

vgroscopic-surface-moisture hardenability which has a hydrolytic silicon group is mentioned to the such the end, although the pliability of a hardened material increases, the viscosity of resin becomes (0005)If the molecular weight of such a polymer is small, viscosity will become low, but a hardened and indicated to JP,3-72527,A, JP,3-47825,A, etc. In the polymer which has a hydrolytic basis et naterial becomes a thing inferior to pliability. In order to make a polymer into hypoviscosity, 0004]As a polymer of such hygroscopic-surface-moisture herdenability, the polymer of the nigh and workability gets remarkably bed, so that the molecular weight is generally large.

which has the surface contamination after contamination and paint of the ceiling part circumference 0006]As such a plasticizer, eromatic carboxylic acid ester, aliphatic-carboxylic-acid ester species, glycol ester, phosphoric ester, an epoxy plasticizer, a chlorineted paraffin, etc. are used. However, since these plesticizers are translatable, when it is used for a scaling material etc., there is e feult and an adverse effact to en adhesive property.

naintaining the pliebility of a hardened materiel until now, various kinds of plasticizers have been

gents are usually used in combination called a actual sealing material and adhesives, e polymer's own paints on the surface in the good characteristic of elongation, the hardenability constituent in which surface stain resistance has been improved is called for. Although various kinds of inorganic building oliability is much more required for use of a bulking agent in order to harden the physical properties 0007]The hardenebility constituent which adds the very low reactant plasticizer of translatability is proposed by JP,5-59267,A, without reducing the pliability of a hardened material to the polymer of sancel such a fault. However, in the use to a sealing material etc., pliability is higher, and when it the hygroscopic-surface-moisture hardenability which has a hydrolytic silicon group in order to

could be reduced and it used the inorganic buiking agent, the hardened material with a flexibly good extension characteristic was given, and moreover, translatability was dramatically low, and se a result Problem(s) to be Solved by the Invention] Then, even if the viscosity of the hardenability constituent of examining the edditive agent which does not pollute a surface coat, it resulted in this invention.

50000 ] (I) and polymer (I) 100 weight aection which averages this invention in one molecule and has Means for Solving the Problem]Namely, polymer with an or more 8000 molecular weight [ or less

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JP,09-095619,A [DETAILED DESCRIPTION]

nea 1.5 or leas one or more piaca hydrolytic ellicon groups is received, a manufacturing method of a molecule and has 1.5 or less 0.5 or more piece hydrolytic silicon groups, And polymer (0100 with an or more 8000 molecular weight [ or less 50000 ] weight section which evarages in one molecule and nature constituent containing less than the with an or more 300 molecular weight [less than 8000] oom-temperature-curing nature constituent mixing less than the with an or more 300 molecular veight [ less than 8000 ] more than low molecule polymer (II)1 weight-section 200 weight section .5 or less one or mora piace hydrolytic silicon groups is raceived, A room-temparature-curing more than low molecule polymer (II)1 weight-section 200 weight section that averages in one

that averages in one molecule and has 1.5 or less 0.5 or more piece hydrolytic silicon groups --- it

0011]As for such a polymer, what is obtained by introducing a hydrolytic silicon group by the suitable Embodiment of the Invention] As for both polymer (1)s end low molecule polymer (11)s that are used 0012]Such a polymer is proposed by JP.3-47825,A. JP.3-72527,A. JP.3-79627,A. JP.46-30711,B. by this invention, consisting of polyether intrinsically is [ the mein chein of a molecule ] preferred. method for a polyether containing hydroxyl group is preferred.

0013]A polyether containing hydroxyl group is obtained by polymerizing monoapoxide, euch as bottom elkylene oxide of existence of en initiator and a oatalyst. JP.45-36319,B, JP.46-17553,B, etc., for example.

0015JAs a compound which has one active hydrogen, an unsaturation group content mono-hydroxy compound which has 2-4 hydroxyl groups especially is preferred 2-8 pieces. Specifically Ethylene There is polyol of low molecular weight from the object produced by meking monospoxide react to 0014]The compound which has 1-10 active hydrogen as an initiator is preferred. As a compound [6-hexanedio], glycerin, trimethylolpropane, pertaerythritol, diglycerol, a shook sirloin, and these. glycol, a diethylene glycol, propylene glycol, Dipropylene glycol, neopentyl glycol, 1,4-butanediol, which has 2-10 ective hydrogen, a polyhydroxy compound is preferred, and the polyhydroxy One-sort single use or two or more sorts of concomitant use may be sufficient as these.

[0017] As a catalyst, catalysts, such as an alkaline metal catalyst, a composite metal cyanide complex (0016)As monoepoxide, there are propylene oxide, butylene oxide, ethylene oxide, allyl glycidyl ether, compound, for example like allyl alcohol is preferred. When manufacturing especially low molecule polymer (II), the aliphatic series of the carbon numbers 1-20, alicycle fellows and an aromatic nonogar, a thiol, secondery emine, carboxylic acid, etc. can be used atc. Especially propylene oxide is preferred.

following (1) or the method of (4), polyether of olefin ends, such as polyoxypropylene glycol monoallyl polyoxypropylene triol, polyoxypropylena tatraol, and polyoxypropylene hexaol. When using for [0018]Especially desirable polyethers containing hydroxyl group are polyoxypropylene diol, ather, can elso be used.

catalyst, and metalloporphyrin, are mentioned.

crosalinking reaction occur with hygroscopic surface moisture. The silicon content group which has the hydrolytic basis coupled directly with the silicon atom can be used. For example, the besis [0019]The hydrolytic ailicon group should just be a silicon group with which hydrolysis end expressed with a formula (A) is preferred.

0021]R1 is a univalent organic group the substitution of the carbon numbers 1-20, or unsubstituted 0020]-R2-SIX,R13-3-1 (A)

among a formula (A), R<sup>2</sup> is a divalent organic group, X is a hydroxyl group or a hydrolytic basis, and a is an integer of 1-3.

Jesirable X, e with a carbon number of four or less lower alkoxy group especially a methoxy group, an 0022]As R<sup>1</sup> in a formule (A), a with a carbon number of eight or less alkyl group, a phenyl group, and s fluoro alkyl group are preferred, and a methyl group, an ethyl group, a propyl group, a butyl group, a ,0023]X is a hydroxyl group or a hydrolytic besis, and there are a halogen atom, an alkoxy group, an acyloxy group, an amide group, an amino group, an aminocxy group, a KETOKISHI mate group, end a ydrolytic basis which has a cerbon atom emong these, four or less are [ six or less ] preferred. As hydride group as a hydrolytic basis, for example. As for especially the carbon number of the nexyl group, a cyclohexyl group, especially a phenyl group, etc. are preferred.

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ettoxy basis, a propoxy group, etc. can be illustrated, a is an integer of 1-3 and 2 or 3 is preferred, additional control and a solid perferred, additional control and an additional. These polymers introduce a videolytic signor, the namelated problems of polymer of the other of a polysether containing hydroxyl group by a method like.

ollowing the (1) – (4), and are manufactured.

5025(1)(A neatboot to window the sillions into compound expressed with what introduced the castartacion group in the send of informyl group end polybether, and a formula (5) is made to react under existence on the object the send of informyla (4). X, and a are the same also in a formula (4).

Deficiency and any office or production of the second of t

he unsaturation group certain monepoolds, auch as ally globiolyl ether.

1009(12) How to make the compound which has a hydrolybe alicon group expressed with an
ecogenete group and a frendal (A) reach to hydroxyl group end polysther.

1009(13) A method to which W base of the alicon compound expressed with a formula (G) to this

cooperate group is made to react after making polytocoperate compounds, such as tablean dissipance, matter the hydroxyl group and polytcher and considering it as an isocyanate group end,  $(2-2)^2 - (2-2)^2 + (2-2)^2$ 

0020] Howwer, also in a formula (A), R<sup>1</sup>In formala (O), X, and a are the same, R<sup>2</sup> is a dustent creamio cross, and W the active lyingerin containing group choisen the from the lyindrog stout, the condroxyl group, the sufficient council and the amino group (the first class or the Zind class).

group, the sullivelyd group, and the armine group (the its its class or the Zard department of 1903)(14) A method to which the unsaturation group of what included the unsaturation group into the end of hydroxyl group on incipophyther, and the authority group of a silonn companied organisms the end of hydroxyl group on ended by group or greated by the ending 100 whose W is a sullively group or sended to reset.

(1904)(Especially in manifecture of flow molecule polyment (1), the molecular terminal group besides (1904)(Especially in manifecture of flow molecule polyment (1), the molecular terminal group besides

Collegate daily in maintricture of two means to special positions are set of collegated by the collegate daily of collegated by the collegated by the collegated by the collegate daily of the collegated by the collegate of the collegated by the co

[0.05]Polymer (D in this invarion) is a tith an or enner 8000 molecular verifielt for less 80000 birtich. For this molecular terminal cardiars 1.5 or less one or more piece, inycriptor allocor groups polymer. As for this molecular terminal cardiar lumibe per molecule of polymer (J), 2-6 are proferred, and 2costable) 4 are perfected. Apprint (J) is 50000 or less [ 8000 or more ]. When the molecular [0.053]The molecular vesigir of propriet (J) is 50000 or less [ 8000 or more ]. When the molecular [0.053]The molecular vesigir of profess.

weight of this organic polymer is lower than 8000, the elongation of a hardened material becomes low.

and when a molecular weight exceeds 50000, workability gets remarkably bad for hyperviscosity. As

for a molecular weight, it is preferred that it is 10000-40000, and it is preferred that it is especially 01000-10000.
10007170-80000.
10007170-80000 is computed for polymer (I) and low molecule polymer (II) is computed based on the low molecule weight of pylotoxy group and polyether which is a raw vircoxy Value conversion value molecular weight of hydroxy group and polyether which is a raw

[0038] Low melatule polymer (II) is a with an or more 300 molecular velight [less than 9000 ] which because a consistent of the 18 set of the

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[0039]The molecular weight of low molecule polymer (III) is less than [ 300 or more ] 8000. When a smootalar weight is 800 or more, the efforts as an abserveness-reducing agent becomes low. 300–8000 are perforded and 2000–4000 are more preferred.

0040]Low molecule polymer (II) plays a role of the reactant adhasiveness-reducing agent or

plasticizer of northernalizations were greated and order of the molecule polymer (2001) this invention, 200 or less weight section one or more-weight section of low molecule polymer (2010) weight section is preferred, and expecially one to 80 weight section is preferred.

(00/2) it is predicted to mix and use how melacule optimer. (I) to polymer (I) in this invention.

(00/2) it is predicted to mix and use how melacule optimer. (II) to polymer (II) in this invention.

In a comparable of the properties of the invention of increasing vol publicly forward melacules and good whether a behalfors again, and at part, a softward, a planticist; calc, can be included.

In organic allicent production of the production

was distance of the natural classifier distances decord in distances, the following carboxylic type expension of an extraction of the compound and the influence of these advances byte sequence in compounds and the influence of these advances byte sequence in the compound and the advancement sequence amones, inc.- $(L_{\phi}^{1}L_{\phi}^{1})$  and  $(ODOD-EHODODH_{\phi}^{1})$ ,  $(C^{1}C_{\phi}^{1}H_{\phi}^{1})$ , and  $(ODOD-EHODODH_{\phi}^{1})$ ,  $(C^{1}C_{\phi}^{1}H_{\phi}^{1})$ , and  $(ODDD-EHODODH_{\phi}^{1})$ ,  $(C^{1}C_{\phi}^{1}H_{\phi}^{1})$ , and  $(ODDD-EHODDDH_{\phi}^{1})$ ,  $(C^{1}C_{\phi}^{1}H_{\phi}^{1})$ , and  $(C^{1}C_{\phi}^{1}H_{\phi}^{$ 

 $(00000H=CH0000Q_{i}H_{j}^{-n})^2 c_{in-Q_{j}H_{j}}$ ,  $S^{an}(0000H=CH0000Q_{i}H_{1}^{-1}heo)_2$ [004]]The following suffur-containing mold organic th compound,  $(n-Q_{i}H_{j})_2^{-j}h$  (SCH $_{k}$ OOO),  $(n-Q_{i}H_{j})_2^{-j}h$  (SCH $_{k}$ OOO),  $(n-Q_{i}H_{j})_2^{-j}h$  (SCH $_{k}$ OOO),  $(n-Q_{i}H_{j})_2^{-j}h$ 

 $(\text{SOH}_{\underline{1}}\text{COOGH}_{\underline{1}}\text{CH}_{\underline{1}}\text{COOG}_{\underline{1}}\text{H}_{\overline{1}}) = 0 \times (\text{SOH}_{\underline{1}}\text{COOG}_{\underline{1}}\text{H}_{\overline{1}}) = 0 \times (\text{SOH}_{\underline{1}}\text{COOG}_{\underline{2}}\text{H}_{\overline{1}}) = 0 \times (\text{SOH}_{\underline{1}}\text{COOG}_{\underline{2}}\text{H}_{\overline{1}}) = 0 \times (\text{SOH}_{\underline{1}}\text{COOG}_{\underline{1}}\text{H}_{\overline{1}}) \times (\text{SOH}_{\underline{1}}\text{COOG}_{\underline{2}}\text{H}_{\overline{1}}) = 0 \times (\text{SOH}_{\underline{1}}\text{COOG}_{\underline{1}}\text{H}_{\overline{1}}) \times (\text{SOH}_{\underline{1}}\text{COOG}_{\underline{2}}\text{H}_{\overline{1}}) = 0 \times (\text{SOH}_{\underline{1}}\text{COOG}_{\underline{2}}\text{H}_{\overline{1}}) \times (\text{SOH}_{\underline{1}}\text{COOG}_{\underline{2}}\text{H}_{\underline{1}}) \times (\text{SOH}_{\underline{1}}\text$ 

[0046] $G_{1}G_{2}H_{2}^{\dagger}$  Organic through such as  $g_{2}NO$  and  $I_{1}G_{2}H_{1}^{\dagger}J_{2}NO$ . And the resultant of these organic through such as they diseast directly melasta, a deathyl malestra, and exply insteast, and such ylenseast, and suchly malestra, instead to the property physicials, destry by phalasta, and suckly findless throughously, as such as the following, and the resultant of these throughously as such as the following, and the resultant of these throughously and

 $(r-Q_+H_0^{\mu})^{\mu}(G_+^{\mu}H_1^{\mu}O)$  Sn (seec). [0050] The following th compound  $(n-C_0^{\mu}H_0^{\mu})_{\mu}(G_+^{\mu}GOO)$  Sn-OSn(OCOCH $_3$ )  $(n-C_0^{\mu}H_0)_{\mu}$   $r_0$   $(n-C_0^{\mu}H_0)_{\mu}$ 

(CH<sub>4</sub>O) SnOSn(OCH<sub>3</sub>) (n-C<sub>4</sub>H<sub>9</sub>)<sub>2</sub>.

Judag/Uneque un vomputariori commente de la commente de la company de la company de la composition (n°C4Hg) <sub>2</sub> Sn(acac) <sub>2</sub>, (n°C<sub>6</sub>H<sub>17</sub>) 2 Sn(acac) <sub>2</sub>, and

[DGD] it is considered as a building again, the publish yound not libowing building eapter dash to sense.

The adoleum exholates which earned out the number breatment of the surfaces with fifty odd or a reas a sold system organize matter. Colled collect necessary with a man state lost financial of 1 micronenter or lises which furthermore impligable provider-ired the, fullouim orbitosis, such as provided and sold or surfaces with the surfaces of the surfaces

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0052]Aa for eapecially the amount of the bulking agent used, 50 to 250 % of the weight is preferred lass fiber, a glass filament, carbon fiber, the Kevler textiles, and a polyethylene fiber.

and butyl oleate, Trioctyl phosphate, Phosphorio ester, such as tricrosyl phosphate; epoxy plasticizer, (0054] As a plasticizer, for example Dioctyl phthalate, dibutyl phtalate, Phthalio acid alkyl ester, such as phthalic acid benzyl butyl ester, Dioctyl adipate, Glucohol ester species, such as aliphatic carboxyfic-acid alkyl ester; pentaerythritol ester, such as succinic acid diisodecyl, dibutyl sebacate, 0053]A plasticizer may be used, although the room-temperatura-curing nature constituent in this one to 1000% of the weight to the aum total of polymer (I) and low molecule polymer (II). These nvention is fully hypoviscosity in itself and it is preferred not to use a plasticizer substantially. pulking agents may be used independently and may be used together two or more sorts.

which is this invention of being easy to carry out after [room-temperature-curing nature constituent he room-temperature-curing nature constituent of this invention to contain a plasticizer further, and nardening I bleed out, among such plasticizers, it is preferred not to use it. That is, it is preferred for veight, and a low molecule plasticizer rafers to the plasticizer which does not have a reactant group. 0055]However, as for a low molecule plasticizar, since a low molecule plasticizer has the problem not to contain a low molecule plasticizer as the plasticizer. The compound itself is low molecular ndependent, or can use it with two or more sorts of mixtures.

chlorinated paraffin, such as epoxidized soybean oil and epoxy stearic acid benzyl, etc. can be

0056]In the constituent of this invention, a hydrolytic silicon compound may be arbitrarily added in specifically Tetramethyl silicate, vinyltrimetoxysilane, Although the compound etc. in which methyl order to adjust physical proparties and hardenability of a hardened material. As auch a compound, rimetoxysilane, dimethyldimethoxysilane, trimethylmethoxysilane, etc. and these methoxy groups for example, it is phthalic acid alkyl ester.

baints, various kinds of stabilizer, and surface treatment like oligoaster acrylate etc. are mentioned. A phystropy grant agent, phenol resin, an epoxy resin, etc. and various kinds of silane coupling agents, (0057]As an additive agent, the photoresist compound aiming at adhesion grant agents, such as a were replaced by the ethoxy basis can be illustrated, it is not limited to these.

0058]The room-temperature-curing nature constituent of this invention can be used as a sealing naterial especially an elastic sealing compound, and adhesives. solvent can also be used in order to prepare viscosity.

0060][Exemple 1] Propylens oxide was made to react under existance of a zinc hexa cyanocobaltate 3elow, a part shows a weight section. As for the example of manufacture of low molecule polymer acomplex compound catalyst by having used 2-ethylhexanol as the initiator, and the polyoxypropylana noncoar was manufactured. Subsaquently, after using 95% of terminal hydroxyl groups as an allyloxy about I which has a methyl directhoxy silyl propyl group was compounded. Viscosity was 1100cP at group, methyl dimathoxyailane of the equivalent was made to react 80% to an allyl group by having nade chloroplatinic acid into the catalyst further, and the polymer a of the molecular weight 5000 Example]Although an example explains this invention below, this invention is not limited to these. 4, and Examples 5-9, working example of this invention and Examples 14-18 of the example of nanufacture of polymer A-E and Examples 10-13 are [ Examples 1-4 ] comparative examples.

xistence. The reaction mixture was diluted with 5-times the amount hexane, and was rinsed, except oquivalent 80% to an allyl group by having made chloroplatinic acid into the catalyst, and the polymer oquivalent 80% to an allyl group was compounded. 0061][Example 2] The bottom propylene oxide of existence of a zinc hexa cyanocobaltate complex 0062][Example 3] Propylene oxide was made to react by having used allyl alcohol as the initiator, equimolar was made to react to this furthermore, and the polymer b of the molecular weight 4000 and the polyoxypropylene monooar of the molecular weight 2000 was manufactured. Then, it was or the triethylamine hydrochloride, hexane was distilled off and one and acquired the monosily! colyoxypropylene monocer was manufactured. The methyl dimethoxy silyl propylisocyanate of compound catalyst was made to react by having used 2-cthylhexanol as the initiator, and the bject of the benzoyloxy group. Next, it was made to react to methyl dimethoxysilane of the made to react to a hydroxyl group and the benzoyl chloride of equimolar under triethylamine about ] was compounded. Viscosity was 1050cP at 25 \*\*

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Viscosity was 700cP at 25 \*\*.

.0063][Example 4] Propylena oxide was made to react by having usad butanol as the initiator, and the to react 95% to an allyl group, and the polymer d of the molecular weight 6000 [ about ] which has a dinethoxysilane was made to react by having made chloroplatinic acid into the catalyst furthermore, and the polymer B of the molecular weight 18000 [ about ] which has an average of 1.7 methyl dimethoxyailane was made to react by having made chloroplatinic acid into the catalyst furthermore. polyoxypropylene monooar of the molecular weight 6000 was manufactured. After using 93% of terminal hydroxyl groups as an allyloxy group, the dimethylethoxy silene of the equivalent was made dimethoxysilane was made to react by having made chloroplatinic acid into the catalyst furthermore. [0064][Example 5] Ethylene glycol was used as the initiator and the terminal hydroxyl groups of the 0065][Example 6] Ethylene glycol was used as the initiator and the terminal hydroxyl groups of the polyoxypropylene diol produced by making the bottom propylene oxide of existence of a zinc hexa polyoxypropylene diel produced by making the bottom propylene oxide of existence of a zinc hexa polyoxypropylene triol produced by making the bottom propylene oxida of axiatence of a zinc hexa and the polymer A of the molecular weight 18000 [ about ] which has an average of 1.2 methyl oyanooobaltate compiex compound catalyst react was changed into the allyloxy group. Methyl and the polymer C of the molecular weight 18000 [ about ] which has an avarage of 1.8 methyl cyanocobaltate complex compound catalyst react was changed into the allyloxy group. Methyl cyanocobaltate complex compound catalyat react was changed into the allyloxy group. Methyl 0066][Example 7] Glycerin was used as the initiator and the terminal hydroxyl groups of the dimethylethoxy silylpropyl group was compounded. Viscosity was 2500oP at 25 \*\*. dimethoxy silyl propyl groups per molecule at the end was compounded. dimethoxy silyl propyl groups per molecule at the end was compounded.

[0069][Examples 10-18] Polymer A-E and low molecule polymer a-d (or dioctyl phthalate: DOP) were dimethoxysilane was made to react by having made chloroplatinic acid into the catalyst furthermore, and the polymer D of the molecular weight 18000 [about] which has an average of 2.4 methyl Jimethoxysilane was made to react by having made chloropiatinic acid into the catalyst furthermore. mixed at a rate of the description to Table 1, mixed liquor was obtained, and the viscosity (a unit is colyoxypropylene triol produced by making the bottom propylene oxide of existence of a zinc hexa polyoxypropylene triol produced by making the bottom propylene oxide of existence of a zinc hexa cyanocobaltate complex compound catalyst react was changed into the allyloxy group. Methyl cyanocobaltate complex compound catalyst react was changed into the allyloxy group. Methyl and the polymer E of the molecular weight 30000 [about ] which has an average of 2.4 methyl dimethoxy silyl propyl groups per molecule at the end was compounded. [0067][Example 8] Glycerin was used as the initiator and the terminal hydroxyl groups of the 0068][Example 9] Glycerin was used as the initiator and the terminal hydroxyl groups of the dimethoxy silyl propyl groups per molacule at the end was compounded. dimethoxy silyl propyl groups per molecule at the end was compounded.

antioxidant, an ultraviolet ny absorbent, and light stabilized; bito Ciba-Gaigy make, timurin B752 copy, and a photo-setting resist (the 1 Tagased Chemical Industry Co., Lid. make.) It knaeded under the conditions which and AROMINSUI M80255 copy, two copies of silane coupring agents (the Shir-Eteu Chemical Co., Ltd. make, \*\*KBM603), one copy of hydrogenation castor oil, and two copies of dibuty/ thi bisacety/acetonate (the Nihon Kagaku Sangyo Co., Ltd. make, NASEMUSUZU), and moisture does 0071]although it pierced with the JIS No. 3 dumbbell after creating the sheet about 2 mm thick and carrying out oure for seven days at 50 \*\* subsequently for seven days at 20 \*\* --- a 50% modulus (M<sub>SO</sub>, unitkg/om²) and breaking strangth (unit kg/om²) -- it was extended and (%) was measured company make, HOWAITON SB), 30 copies of Utenium dioxides, and stabilizer (the mixture of an 10070]se opposed to these 160 copies of mixed liquor — calcium carbonate (Shiroishi calcium company make.) 75 copies of Hakuenka COR, 75 copies of calcium carbonate (Shiroishi calcium not mix, and was considered as the uniform mixture. polymer among front.

AP) at 25 \*\* was massured. P-Si shows the number of the hydrolytic silicon groups per molecule of a

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[0072]After having applied the achorst system alkyd paint (the Rock Paint Co., Ltd. make, house abaind, after creating and carryfact out our of the abest about 1 on thick, and learing for one week at 70 \*\*; It was expossed to the outdoors and the dirt situation of the paint auritoo was observed one

month afterward, evaluation -- 0: -- it was assumed that adhesion of a beautiful thing, x;dust, etc. is

remarkable and dirty although dirt has sahered a little (etain resistance of a paint surface). (10073), which has paintly surfaces as not 1; even modulus evaluing motival for the plability of hardress as not 1; even modulus evaluing motival for the plability of hardress and the same and it was obtained it presupposed that it hardward material in which carried out our of this influence and it was obtained it presupposed that it is not hard as a 1 \*\*\* modulus sealing material, and evaluated. These results are also collectively within Table 1. [1074]

塞		1.0	11	12	13	1.4	1.5	1.6	17	
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何	ы					8	2		5	
(0	υ	38	8	8	90			8		
*	Д					8	8		8	
	M									=
	F-S1	1.38	1.38	1.38	1.38	1.91	1.81	1.38	1.91	2.4
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Mso		1.0	17	1.3	6.9	1.9	5.5	9.0		64
华	班斯斯斯	8	6.0	6.5	5.5	80.50	6	5.5		œ
#	ŭ	8	810	730	830	289	989	8	22	750
噩	15	0	0	0	0	0	0	×		_
ê	の和果和									
K	不敢性	0	0	0	С	×	×	0	×	×

Effect of the Invention]Even if the room-temperature-curing nature constituent of this invention has low viscosity enough and it uses an inorganic bulking agent, the pliability of a hardened material is not reduced. And since the low molecule polymer used by this twombin has very low translability, when the constituent of this invention is used for a sasing material exit, it does not then contamination or the networkers effect to an alteriate property of the celling part circumference or a paint suffice.

### \* NOTICES \*

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\*\*\*\* shows the word which can not be translated. In the drawings, any words are not translated.

# CORRECTION OR AMENDMENT

Kind of official gazette]Printing of amendment by regulation of Patent Law Article 17 of 2 Publication date]Heisei 14(2002) April 2 (2002.4.2) Section Type] The 3rd Type of the part III gate

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Annual volume number] Publication of patent applications 9-957 Application number] Japanese Patent Application No. 7-254030 Tha 7th edition of Intarnational Patent Classification]

308L 101/10 LTB

308G 65/32 NOJ COBK 5/54 KCD [F1]

308L 101/10 LTB

3086 65/32 NO.

Written Amendment 208K 5/64 KCD

Filing date] Haisei 13(2001) December 27 (2001.12.27) Document to be Amended Description Amendment 1

Method of Amendment Change Itam(a) to be Amended Claims Proposed Amendment

with an or more 300 molecular weight [ less than 8000 ] more than low molecule polymer (II)1 weightpolymer (I)100 weight section which averages in one molecule and has 1,5 or less one or more piece hydrolytic silicon groups, A room-temperature-curing nature constituent containing less than the Claim 1]As opposed to polymer with an or more 8000 molecular weight [ or less 50000 ] (I) and section 200 weight section that averages in one molecule and has 1,5 or less 0.5 or more piece

Claim 2]The room-temperature-curing nature constituent according to claim 1 whose both main shain of polymer (I) and main chain of low molecule polymer (II) are polyether intrinsically. hydrolytic silicon groups.

Claim 3]The room-temperature-ouring nature constituent according to claim 1 or 2 in which a room-Claim 4]The room-temperature-ouring nature constituent according to claim 1 or 2 which a roomemperature-curing nature constituent contains a plasticizer further, and doas not contain a low emperature-curing nature constituent does not contain a plasticizer substantially.

Claim 5]As opposed to polymar (1)100 with an or more 8000 molecular weight [ or less 50000 ] cufa plasticizer as the plasticizer.

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han the with an or more 300 molecular weight [ less than 8000 ] more than low molecule polymer (II) ilicon groups, A manufacturing method of a room-temperatura-curing natura constituent mixing leas weight-section 200 weight section that averages in one molecule and has 1.5 or less 0.5 or more veight section which averages in one molecule and has 1.5 or less one or more piece hydrolytic

Socument to be Amended Description piece hydrolytic silicon groupa. tem(s) to be Amended[0002 Amendment 2]

Method of Amendment Change Proposed Amendment 0002

neve a hydrolytic silicon group, and using it for a sealing material, adhesives, etc. is known well, and is Description of the Prior Art The method of making an end harden various kinds of polymers which a useful method industrially.

Document to be Amended Description Method of Amendment Changa Item(s) to be Amended]0003 Amendment 3]

,0003]The polymer especially whose main chain is polyether among such polymers is liquefied at a comparatively and uses for a sealing material, adhesives, etc., it is provided with the desirable oom temperature, and when a hardenad material holds pliability also at low temperature Proposad Amendment

Amendment 4] sharacteristic.

Document to be Amended Description Method of Amendment]Change Item(s) to be Amended]0007

.0007]The hardenability constituent in which translatability adds a very low reactant plasticizer is Proposed Amendment

cancel such a fault. However, in the use to a scaling material etc., pliability is higher and it is the good agents are usually used in combination called a actual scaling material and adhesives, a polymer's own characteristic of elongation, and when it paints on the surface, the hardenability constituent in which surface stain resistance has been improved is called for. Although various kinds of inorganic bulking oliability is much more required for use of a bulking agent in order to harden the physical properties proposed by JP,5-59267,A, without reducing the pliability of a hardened material to the polymer of the hygroscopic-surface-moisture hardcnability which has a hydrolytic silloon group in order to of a hardened material.

Document to be Amended Description Item(s) to be Amended]0008 Amendment 51

Method of Amendment]Change roposed Amendment 0008

extension characteristic was given, and moreover, translatability was dramatically low, and as a result Problem(s) to be Solved by the Invention]Then, even if the viscosity of the hardenability constituent could be reduced and it used the inorganic bulking agent, the hardened material with a flexibly good of examining the additive agent which does not pollute a surface coat, it resulted in this invention.

Document to be Amended]Description Method of Amendment]Change Item(s) to be Amended]0034 Amendment 6]

arminal hydroxyl groups react to a hydrolytic silicon group with a benzoyl chloride etc. by using as a nydrolytic silioon Motomoohi may be an inertnesa organic group. For example, it may manufactura by changing a terminal unaaturated group into an inertness organic group by tha method of making [0034]Especially in manufacture of low molecule polymer (II), tha molecular terminal group besides Proposed Amendment

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aw material the polyether monocar which manufactured the terminal unsaturated group content

mono-hydroxy compound as an initiator. Amendment 7

Document to be Amended Description

Method of Amandment Change tem(s) to be Amanded[0044

an organic silicon titanate, and bismuth tris-2-ethylhexanoate, Acidic compounds, such as phosphoric texylamine, ootylamine, decyl amine, and lauryl amine, Aliphatic diamine, such as ethylenediamine and 0044]The following compound can be used as a curing catalyst. Metal salt, such as an alkyl titanate, soid, p-toluenesulfonio acid, and phthalic soid, a butylamine, Aliphatic series monoamines, such as s hexanedismine, diethylenetriamine, Aliphatic polyamine, such as triethylenetetramine and

tetraethylenepentamine. Amine compounds, such as aromatic amine, such as heterocyclic amine, such as piperidine and a piperazine, and a meta-phenylenediamine, ethanolamines, triethylamine, and various denaturation amine used as a hardening agent of an epoxy resin. Amendment 8]

Document to be Amended Description Item(s) to be Amendad 0051

Method of Amendment Change

0051]If it is considered as a bulking agent, the publicly known following bulking agent can be used The caloum carbonate which carried out the surface treatment of the surface with fatty acid or a resin acid system organio matter, Colloid calcium carbonate with a mean particle dismeter of 1 Proposed Amendment

state bulking agents, such as bentonite, organic bentonite, ferric oxide, a zinc oxide, an active white, a sluminum impalpable powder, and the Flint powder. Fibrous fillers, such as glass fiber, a glass filament, precipitated calcium carbonate with a mean particle diameter of 1-3 micrometers manufactured with nicrometers, Fumed silica, sedimentation nature silica, a silicic acid anhydride, hydrous silicic acids, milt balloon, wood flour, pulp, a cotton chip, mica, blacking wash shell flour, chaff powder, graphite, sarbon black, Magnesium carbonate, diatomite, calcination clay, clay, tale, titanium oxide, Powder micrometer or less which furthermore impalpable-powder-ized this, Calcium carbonate, such as he sedimentation method, and heavy calcium carbonate with a mean particle diameter of 1-20

carbon fiber, the Kevlar textiles, and a polyethylene fiber. Amendment 9]

Document to be Amended Desoription Item(s) to be Amended]0054

Method of Amendment]Changa

Proposed Amendment

pentaerythritol ester, such as succinic soid diisodecyl, dibutyl sebacate, and butyl oleate etc.. Trioctyl [0054]As a plasticizer, for example Dioctyl phthalate, dibutyl phtalate, Phthalic acid alkyl ester, such phosphate, Phosphoric ester, auch as tricresyl phosphate; epoxy plasticizer, chlorinated paraffin. ss phthalic acid benzyl butyl ester, Dioctyl adipate, Aliphatic-carboxylic-aoid alkyl ester,

such as epoxidized soybean oil and epoxy steano acid benzyl, etc. can be independent, or can use it with two or more sorts of mixtures. Amendment 10]

Document to be Amended Description Item(s) to be Amended]0062

moniallyl object of the benzoyloxy group. Next, it was made to react to methyl direchboxytains of the equivalent 60% to an ally group by having mode ethoroplaticie and into the catalyst and the person of the molecular weight 2200 which has a methyl directioxy ally propy group was [0062] [Example 3] Propylene oxide was made to react by having used allyl alcohol as the initiator, and the polyoxypropylene monocar of the molecular weight 2000 was manufactured. Then, it was grie<u>thylamine</u>. The reaction mixture was diluted with 5-times the amount hexane, and was rinaed, except for the tricthylamine hydrochloride, hexane was distilled off and one and acquired the hade to react to a hydroxyl group and the benzoyl chloride of equimolar under existence of Method of Amendment]Change Proposed Amendment

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compounded. Viscosity was 700cP at 25 \*\*.

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